

इंटरनेट

मानक

### Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4221 (1967): Quality tolerances for water for tanning industry [CHD 13: Water Quality for Industrial Purposes]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



IS : 4221 - 1967  
( Reaffirmed 1977 )

*Indian Standard*  
QUALITY TOLERANCES FOR WATER  
FOR TANNING INDUSTRY

( First Reprint NOVEMBER 1979 )

UDC 663.6:675.02



© Copyright 1967

INDIAN STANDARDS INSTITUTION  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

Price Rs 5-00

Gr '2

November 1967

# Indian Standard

## QUALITY TOLERANCES FOR WATER FOR TANNING INDUSTRY

---

### Water Sectional Committee, CDC 26

#### Chairman

DR T. R. BHASKARAN

#### Representing

Indian Council of Medical Research, New Delhi

#### Members

SHRI K. L. BANERJEE	National Test House, Calcutta
SHRI N. C. SENGUPTA (Alternate)	
DR P. R. BAVDEKAR	Tata Chemicals Ltd, Bombay
DR R. P. DABOGA (Alternate)	
SHRI M. V. BOPARDIKAR	Central Public Health Engineering Research Institute (CSIR), Nagpur
CHEMIST & METALLURGIST, CENTRAL RAILWAY, BOMBAY	Railway Board (Ministry of Railways)
SECTIONAL OFFICER (CM), RDSO, CHITTARANJAN (Alternate)	
DR I. C. DOS M. PAIS CUDDOU	Central Water & Power Commission
SHRI N. C. RAWAL (Alternate)	
SHRI R. R. DEO	The Paterson Engineering Co (India) Private Ltd, Calcutta
DR N. F. DESAI	Sandoz (India) Ltd, Bombay
DIRECTOR OF SCIENTIFIC RESEARCH (NAVY)	Naval Headquarters
SCIENTIFIC OFFICER (ICE) (Alternate)	
DR M. I. GURBAXANI	The Tata Iron & Steel Co Ltd, Jamshedpur
DR B. B. PAUL	All India Distillers' Association, New Delhi
SHRI N. N. MEHTA (Alternate)	
DR S. C. PILLAI	Indian Institute of Science, Bangalore
DR C. V. S. RATNAM	Neyveli Lignite Corporation Ltd, Neyveli
SHRI G. M. RAWAL	The Tata Hydro-electric Power Supply Co Ltd, Bombay
SHRI R. K. BASU (Alternate)	
DR V. SADASIVAN	Bombay Municipal Corporation
DR B. SARMA	Ministry of Defence (R & D)
SHRI V. K. RAIZADA (Alternate)	
SHRI B. A. SHOLAPURWALA	Italab Private Ltd, Bombay
SHRI V. M. SHAH (Alternate)	
SHRI B. C. SHOME	I.C.I. (India) Private Ltd, Calcutta
DR R. MAUDGAL (Alternate)	
SHRI K. G. VEERARAGHAVAN	Director of Public Health, Madras
DR K. VENKATARAMANAN	Directorate General of Health Services (Ministry of Health & Family Planning)

(Continued on page 2)

( Continued from page 1 )

*Members*

SHRI M. R. VERMA  
DR SADGOPAL,  
Director ( Chem )

*Representing*

National Physical Laboratory ( CSIR ), New Delhi  
Director General, ISI ( *Ex-officio Member* )

*Secretary*

DR G. M. SAXENA  
Deputy Director ( Chem ), ISI

Water for Industrial Purposes Subcommittee, CDC 26 : 2

*Convener*

SHRI R. R. DEO

The Paterson Engineering Co ( India ) Private Ltd,  
Calcutta

*Members*

SHRI K. R. BULUSU

Central Public Health Engineering Research Institute  
( CSIR ), Nagpur  
Camlin Private Ltd, Bombay  
Sandoz ( India ) Ltd, Bombay  
Dyer Meakin Breweries Ltd, Solan  
Central Leather Research Institute ( CSIR ), Madras  
Bombay Municipal Corporation  
Central Electro-chemical Research Institute ( CSIR ),  
Karaikudi

SHRI N. V. PARTHASARADHY ( *Alternate* )

SHRI B. A. SHOLAPURWALA

Italab Private Ltd, Bombay

SHRI V. M. SHAH ( *Alternate* )

SHRI M. R. SRINIVASAN

National Dairy Research Institute, Karnal  
Director of Public Health, Madras

SHRI K. G. VEERARAGHAVAN

# *Indian Standard*

## QUALITY TOLERANCES FOR WATER FOR TANNING INDUSTRY

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 14 June 1967, after the draft finalized by the Water Sectional Committee had been approved by the Chemical Division Council.

**0.2** Water is used in tanning in a number of operations, namely, soaking the hides and skins, liming, deliming, bating, pickling, tanning (vegetable and chrome), bleaching, dyeing and fat liquoring. The quality requirements of water vary from one operation to another.

**0.3** In the individual operations, the tanners take the quality of water into consideration while fixing the treatment period, quantity of chemicals being added, etc. This standard is intended to guide tanners in judging the suitability of a particular supply of water and in planning the type of treatment required for available supply of water.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

### 1. SCOPE

**1.1** This standard prescribes the quality tolerances for water for use in different operations in tanning industry.

### 2. TOLERANCES

**2.1 General Tolerances**—The water shall comply with the tolerances given in Table 1. The tests shall be carried out according to methods laid down in IS:3025-1964†. Reference to the relevant clauses of IS:3025-1964† is given in col 4 of Table 1.

---

\*Rules for rounding off numerical values (*revised*).

†Methods of sampling and test (physical and chemical) for water used in industry.

TABLE 1 GENERAL TOLERANCES FOR WATER FOR TANNING INDUSTRY

( Clause 2.1 )

SL No.	CHARACTERISTIC	TOLERANCE	METHOD OF TEST ( REF TO CL No. OF IS: 3025-1964* )
(1)	(2)	(3)	(4)
i)	Colour ( Hazen units ), <i>Max</i>	25	5
ii)	Turbidity ( units ), <i>Max</i>	20	6
iii)	pH	6.5 to 8.0	8
iv)	Total alkalinity ( as $\text{CaCO}_3$ ), mg/l, <i>Max</i>	150	13
v)	Total hardness ( as $\text{CaCO}_3$ ), mg/l, <i>Max</i>	500	16
vi)	Iron ( as Fe ) and manganese ( as Mn ), mg/l, together, <i>Max</i>	1.0	32 and 35

\*Methods of sampling and test ( physical and chemical ) for water used in industry.

**2.2 Additional Tolerances for Specific Operations** — In addition to the tolerances given in Table 1, the water shall also comply, for specific operations, with the tolerances given in Table 2. The tests shall be carried out according to methods laid down in IS: 1622-1964\* and IS: 3025-1964†. Reference to the relevant clauses of these standards is given in col 9 and 10 of Table 2.

### 3. SAMPLING

**3.1** Representative test samples of the water shall be drawn as prescribed in 2 of IS: 1622-1964\* and 2 of IS: 3025-1964†.

### 4. TEST METHODS

**4.1** Tests shall be carried out according to methods given in IS: 1622-1964\* and IS: 3025-1964†.

\*Methods of sampling and test for microbiological examination of water used in industry.

†Methods of sampling and test ( physical and chemical ) for water used in industry.



**TABLE 2 ADDITIONAL TOLERANCES FOR SPECIFIC OPERATIONS**

( Clause 2.2 )

SL No.	CHARACTERISTIC	TOLERANCE FOR						METHOD OF TEST, REF TO CL No.	
		Soaking	Liming	Delim- ing; Bating	Leaching Tanning Extract; Dyeing with Basic Dyes; Fat Liquor- ing	Vege- table Tanning	Chrome Tanning	IN	
								IS : 1622- 1964*	IS : 3025- 1964†
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	Standard plate count, per ml, <i>Max</i>	100	—	—	—	—	—	5	—
ii)	Total hardness ( as CaCO <sub>3</sub> ), mg/l, <i>Max</i>	—	—	—	30	30	300	—	16
iii)	Carbonate hardness ( as CaCO <sub>3</sub> ), mg/l, <i>Max</i>	—	50	50	—	—	—	—	17
iv)	‡Chlorides ( as Cl ), mg/l, <i>Max</i>	—	—	—	—	500	500	—	24

\*Methods of sampling and test for microbiological examination of water used in industry.

†Methods of sampling and test ( physical and chemical ) for water used in industry.

‡High amounts of chloride tend to repress swelling of hides in tan liquors.

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

## INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksanstha

### Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	37 97 29
Eastern : 5 Chowringhee Approach	CALCUTTA 700072	23-08 02
Southern : C.I.T. Campus, Adyar	MADRAS 600020	41 24 42

### Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimhaswami Square	BANGALORE 560002	2 76 49
Gangotri Complex, Bhadbhade Road, T.T. Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56/57 L. N. Gupta Marg	HYDERABAD 500001	22 10 83
D-277 Todarmal Marg, Banipark	JAIPUR 302006	6 98 32
117/418B Sarvodaya Nagar	KANPUR 208005	8 12 72
Petliputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27